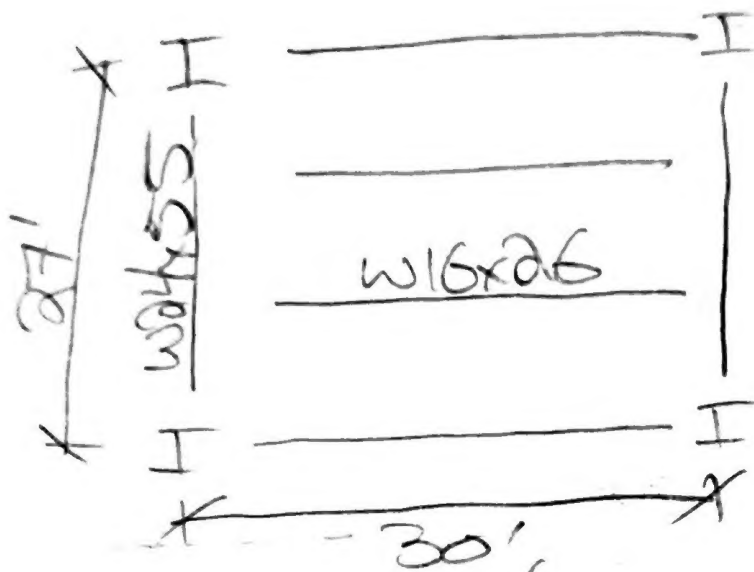


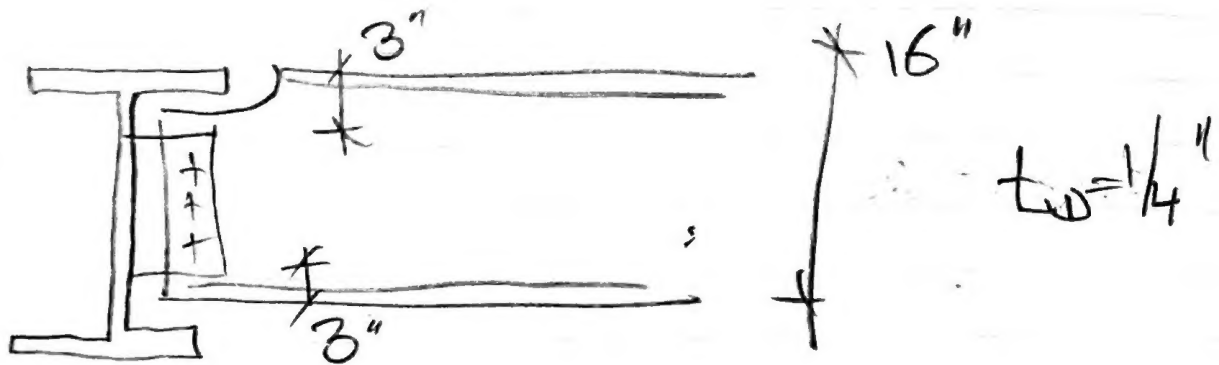
# SIMPLE BEAM CONNECTION



$$N_U = 20''$$

SIZE CONNECTION FROM W16 TO W24

USE  $7/8'' \phi$  BOLTS AND USE TABLE 10-10a

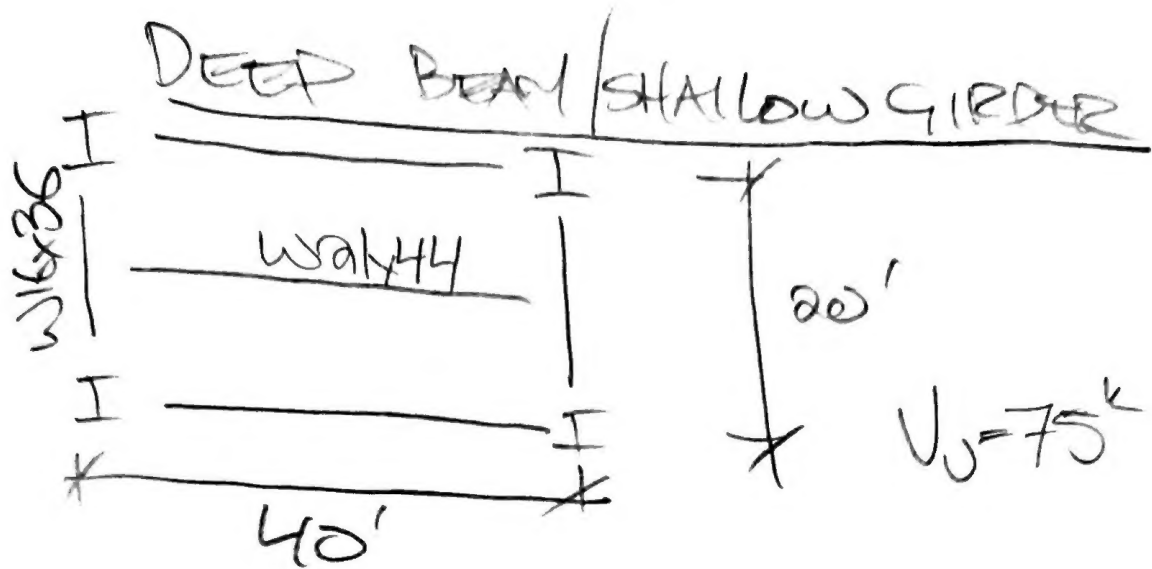


ASSUME ABOVE/BELOW TO PL

$$16'' - 2 \times 3'' = 10'', \text{ SO } L = 9'' \text{ INCHES (CLOSEST VALUE } < 10'')$$

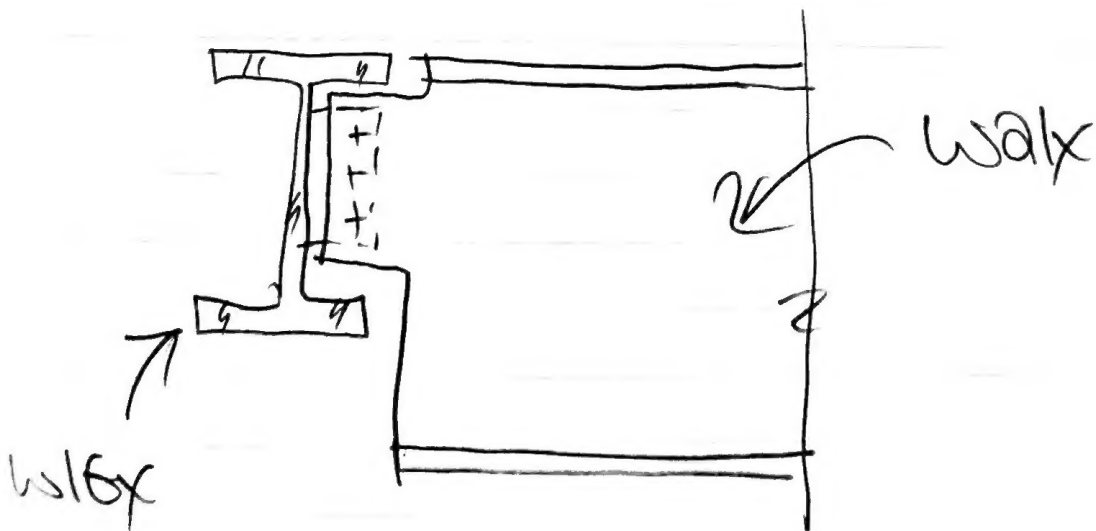
USE (3) BOLTS A305-N, STD  $1/4''$  PL,  $3/16''$  WELD  $\Rightarrow \phi V_n = 39.2^k \checkmark$   
 $t_p \geq t_w \checkmark$

IF  $N_U > \phi V_n$  FOR  $L = 9''$  ON ALL OPTIONS, CONSIDER UPSIZING BEAM DEPTH.



$a_1'' - 2 \times 3'' = 15''$  USE N=5 BOLTS  
 TABLE 10-10a,  $5/16''$  PL w/  $1/4''$  WELD  
 HAS  $\phi V_n = 81.6^k$  ok! ...

BUT DEEP BM SHALLOW GIRDER



CAN ONLY FIT (3) BOLTS!

CONNECTION NG! USE GIRDER  
~~DEPTH~~

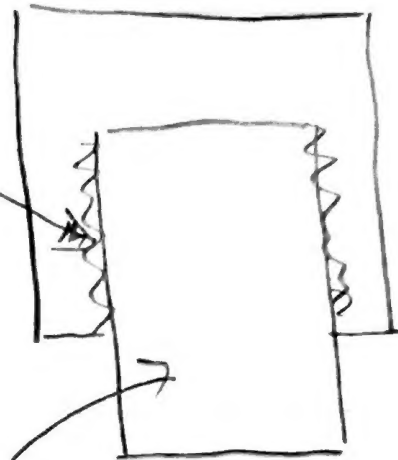
## WELD EXAMPLE

CAPACITY OF COIN?

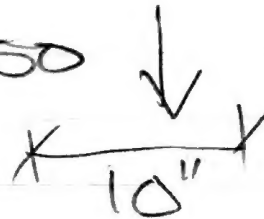
$$F_{EXX} = 70 \text{ ksi}$$

$\frac{3}{16} \times 10$

$\frac{1}{4}" \text{ PL}$   
ASTM A36



$$U = 0.75 \text{ SINCE } L = W \text{ (FROM D3.1)}$$



$$P_{YIELD} = (0.9 \times 10" \times \frac{1}{4}" \times 50 \text{ ksi}) (0.75)$$
$$\phi R_n = 84^k$$

$$WELD = \phi 0.6 F_{EXX} t_e L$$

$$= 0.75 \times 0.6 \times 70 \text{ ksi} \times (0.707 \times \frac{3}{16}) \times 10" \times 2$$

$$= 83.5^k \Rightarrow \text{WELD JUST GOVERNS}$$

$$\text{ALT: } \phi R_n = 1.392 \times D \times L$$

$\xleftarrow{16TH/16}$

$$= 1.392 \times 3 \times (10 \times 2) = \underline{83.5}$$

$\xleftarrow{16TH}$